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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,628	03/29/2004	Tapesh Yadav	A15 DIV(16)	2732
25235	7590	12/29/2004	EXAMINER	
HOGAN & HARTSON LLP ONE TABOR CENTER, SUITE 1500 1200 SEVENTEENTH ST DENVER, CO 80202			LE, HOA T	
			ART UNIT	PAPER NUMBER
			1773	

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Applicati n N .

10/811,628

Applicant(s)

YADAV ET AL.

Examiner

H. T. Le

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-- The MAILING DATE f this c mmunication appears n the c ver sheet with th correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disp sition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>March '04</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-20 are rejected under 35 U.S.C. 102(a), (b) or (e) as being anticipated by various articles as shown below.

Claims 1, 3 and 5-7: See “Synthesis of GaP nanowires with Ga₂O₃ coating” by Liu et al. Nanowires suggest an aspect ratio of larger than one. Ga₂O₃ contains oxygen which is a chalcogen.

Claims 1-3 and 5-7: See “Formation of self-assembling CdSe quantum dots on ZnSe by molecular beam epitaxy” by Xin et al. CdSe nanomaterials as described here have an aspect ratio (diameter-to-height ratio) of 4:1. ZnCdSe/ZnSe contains chalcogen

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(Se) and CdSe dots are described to be unstable with time showing that they vary from non-stoichiometric to stoichiometric state. CdSe is a metallic material.

Claims 1-7 and 10-11: See “New Type of Nanotube Made of Gold or Silver Created” by Weizmann Institute Scientists (Thomas Swan & Co paper). The nanotubes are multilayered nanotubes comprising gold or silver bound to an aluminum oxide membrane (see second page of the paper). Oxygen in aluminum oxide is a chalcogen. Nanotubes are non-spherical by definition; therefore, they have an aspect ratio of larger than 1. Gold and silver satisfy claim 4. Nanotubes are non-stoichiometric and stoichiometric.

Claims 6-9: See “Carbonitride nanomaterials, Thin Films, and Solids” by Khabashesku Margrave. Carbonitrides as disclosed are metallic compounds. These nanomaterials are non-spherical; therefore, they all have an aspect ratio of larger than one.

Claims 6-9: See “Growth of boron nitride nanotubes and iron nanowires from the liquid flow of FeB nanoparticles” by Kian Ping Loh et al. Nanotubes and nanowires by definition are nanomaterial with an aspect ratio of larger than 1. BN contains nitrogen. BN and Fe are metallic materials.

Claims 12-13: See “Catalytic Properties of Ni-B and Ni-P ultrafine materials” by Shao-pai Lee and Yu-Wen Chen. These ultrafine are nanomaterials and Ni-P contains phosphorous. The nanomaterials are non-spherical; therefore, they all have an aspect ratio of larger than 1.

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Claims 14-15: See “Discovery could lead to a new ways to create nano-fibers and wires” by Brightsurf.com. In this online article, it describes a new method to make nanofibers of polymeric material. See second page. Nanofibers or nanowires have an aspect greater than one by definition.

Claims 16-20: See “Growth of boron nitride nanotubes and iron nanowires from the liquid flow of FeB nanoparticles” by Kian Ping Loh et al. At page 5, left column, Loh et al disclose a well-faceted of Fe. The Fe nanoparticles are also described as “vertically elongated” (page 5, last paragraph, right column). Elongated particles have a “plate-like” structure. Fe is a non-oxide. Nanoparticles of Fe is a non-oxide nanoparticles.

3. Claims 1-11 and 16-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Gibson (US 6,156,428).

Claims 1-3 and 5-11: Gibson teaches metal nanoparticles that have high aspect ratio. See claim 1. The particles are oxidized or nitrided, thus they contain chalcogen (oxygen) or nitrogen. See claim 2.

Claim 4: The particles are coated with precious metal including gold (claims 5-6) or with rare-earth (i.e. lanthanides, see claim 8).

Claims 16-20: The particles are platelet (plate-like) or disk-shaped (faceted) (see abstract).

4. Claims 14-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Alexandre et al (US 6,465,543) Alexandre teaches a polyolefin nanocomposites. The nanocomposites are platelet (see abstract and col. 1, lines 9-11), thus they are plate-


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like or faceted. Polyolefine contains no oxygen. The nanocomposites are described as non-spherical (col. 1, lines 13-15) and thus have an aspect ratio of greater than one by definite.

5. Other references are cited as art of interest.
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. T. Le whose telephone number is 571-272-1511. The examiner can normally be reached on 10:00 a.m. to 6:30 p.m., Mondays to Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on 571-272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


H. T. Le
Primary Examiner
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